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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,096	07/22/2003	Norman Herron	PE0696 US NA	8767

23906 7590 12/22/2005

E I DU PONT DE NEMOURS AND COMPANY  
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BARLEY MILL PLAZA 25/1128  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/625,096

Applicant(s)

HERRON ET AL.

Examiner

Dawn Garrett

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-22, 24-36 and 38-41 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 7, 11, 16-19, 21, 24, 30-33, 35 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36 and 39-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is responsive to the amendment dated October 13, 2005. Claims 1-9, 11-22, 24-36, and 38-41 are present. Claims 1, 15, and 29 have been amended. Claims 10, 23, and 37 are canceled.

2. The species under consideration is the following:

- a) conjugated polymer backbone: fluorenediyls
- b) a first-type functional groups: beta-dicarbonyls
- c) a first-type inert spacer groups: alkyl; and
- d) a metal species: Iridium

No second-type functional group is present in the species selected.

Applicant previously indicated claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, 39, 40, and 41 read on this species. Claims 2-5, 7, 11, 16-19, 21, 24, 30-33, 35, and 38 stand withdrawn as non-elected.

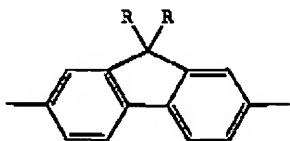
3. The drawings received October 17, 2005 are acknowledged and are accepted. The objection set forth in the paper dated July 13, 2005, paragraph 6, is withdrawn in view of the new drawings.

4. The rejection of claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, 39, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marrocco, III et al. (US 2002/0028347 A1; cited by applicant) is withdrawn upon consideration of applicant's arguments.

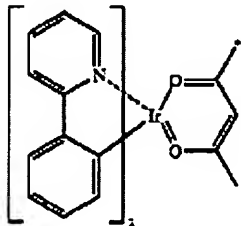
Art Unit: 1774

5. The rejection of claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, 39, 40, and 41 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Ikehira et al. (US 2002/0193532) is withdrawn.

6. Claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, 39, 40, and 41 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. (US 2003/0091862 A1). Tokito et al. discloses polymeric phosphorescent compositions (see abstract). The polymeric material disclosed by Tokito et al. may comprise a fluorene divalent group substituted with a substituent as part of a polymer of which a main chain is a conjugate system (see par. 92-94) per the “conjugated polymer backbone”. These divalent groups are taught as incorporated into the main chain of the polymer (see par. 94). The fluorene divalent group is the following (from par. 93):



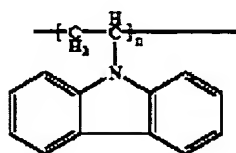
The R groups of the above formula may include alkyl groups (see par. 94) per the “first-type inert spacer group”. A beta-dicarbonyl per the “first-type functional group” may bond to the R groups (see par. 97 and 98). The beta-dicarbonyl complexes with a metal such as iridium (per the “metal”) that is further complexed to a ligand (per claims 14, 27, and 41) (see par. 97). For example:



Art Unit: 1774

“wherein \* marks in the chemical formula denote portions (bonds) connecting to substituents R shown in the chemical formulas of the polymer”.

With regard to claim 9, Tokito et al. teaches carbazole units that may be repeating units of the polymeric chain (see par. 90 and page 8, P4):



Although Tokito et al. fails to exemplify a polymer according to the selected species, in view of the teachings of each required component including the polymeric backbone, first-type functional group, first-type inert spacer group, and metal complex, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a polymer according to the present species, because Tokito et al. teaches all the required individual components of the polymer.

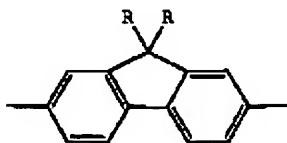
### ***Response to Arguments***

7. Applicant's arguments filed October 13, 2005 have been fully considered but they are not persuasive.

The examiner maintains that Tokito et al. teaches all components of the polymer under consideration although an example of such a polymer is not shown. The examiner notes that non-preferred embodiments can be indicative of obviousness (see *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Boe*, 148 USPQ 507 (CCPA 1976); *In re Kohler*, 177 USPQ 399 (CCPA 1973)), and a reference is not limited to working examples (see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982)). In paragraph 98, Tokito et al. clearly teaches “ \* marks in the chemical

Art Unit: 1774

formulas denote portions (bonds) connecting to substituents R shown in the chemical formulas of



the polymer". Fluorene group

of the chain clearly has "R" groups

which may be alkyl (this teaching encompasses the specific range of alkyl carbon chain numbers 4-12). Furthermore, Tokito et al. teaches in paragraph 100 that a spacer portion between the metal complex portion and the main chain of the polymer is preferred.

### *Conclusion*

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

Art Unit: 1774

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Dawn Garrett  
Primary Examiner  
Art Unit 1774

D.G.  
December 19, 2005